

**Federal Communications Commission's Sixth Report and
Order, 17 Fed. Reg. 3905 (1952)**

(End of the "Freeze" on New Television Broadcasting Licenses and Allocation of
Channels for the Exclusive Use of Noncommerical Educational Broadcasting)



Washington, Friday, May 2, 1952

TITLE 47—TELECOMMUNICATION

Chapter I—Federal Communications Commission

Subchapter B—Radio Regulations

[Docket Nos. 8736, 8975, 8976, and 9175]

PART 3—RADIO BROADCAST SERVICES

SUBPART E—RULES GOVERNING TELEVISION BROADCAST STATIONS

In the matters of amendment of § 3.606 of the Commission's rules and regulations, Docket Nos. 8736 and 8975; amendment of the Commission's rules, regulations and Engineering Standards Concerning the Television Broadcast Service, Docket No. 9175; utilization of frequencies in the Band 470 to 890 mcs for television broadcasting, Docket No. 8976.

SIXTH REPORT AND ORDER

THE PROCEEDINGS

1. These proceedings were instituted on May 6, 1948, by a "Notice of Proposed Rule Making" (FCC 48-1569) designed to amend the table of television channel assignments for the United States, set out in section 3.606 of the Rules and Regulations of this Commission. During the hearing held by the Commission pursuant to this Notice, evidence was introduced which indicated the necessity for a revision of the Commission's Rules, Regulations and Standards with respect to the technical phases of the television broadcast service.

2. On September 30, 1948, the Commission issued a report and order (FCC 48-2182), commonly referred to as the "freeze order". In general, this order provided that no new or pending applications for the construction of new television broadcast stations would be acted upon by the Commission; and that new and pending applications for modification of existing authorizations would be considered on a case-to-case basis with action thereon depending on the extent to which the requested modification affected the issues in the television proceeding. In adopting the "freeze order," the Commission pointed out that a national television assignment plan and the Commission's rules, regulations and standards must be based upon; and must reflect; the best available engineering information. It was noted that the

Part II of this issue contains the Rules Governing Television Broadcast Stations, issued by the Federal Communications Commission.

Commission could not continue to make assignments under the existing table since the evidence presented at the hearing raised serious questions concerning the validity of the bases upon which the table was constructed. The Commission noted that the granting of additional television authorizations would make more difficult any revisions in the table made necessary by subsequent changes in the rules and standards.

3. The current phase of the television proceeding was initiated on July 11, 1949, by the issuance of the Commission's "Notice of Further Proposed Rule Making" (FCC 49-948). Attached to this notice were four appendices: Appendix A set forth the Commission's proposals to amend its television rules, regulations and engineering standards; Appendix B set forth the methods and assumptions upon which the Commission's figures and values specified in Appendix A were based; Appendix C contained the Commission's proposed revision of its table of television channel assignments throughout the United States and the Territories; and Appendix D contained illustrative assignments for Canada, Mexico, and Cuba indicating the manner in which it might be necessary to take into account the use of channels by these countries.

4. In September 1949, the Commission began its hearings on the color television issues in this proceeding and its First and Second Color Reports were issued on September 1, 1950, and October 11, 1950, respectively (FCC 50-1064 and FCC 50-1224).

5. Subsequently, on October 16, 1950, the Commission began hearing the testimony of interested parties who had filed comments concerning the general issues set forth in Appendices A and B of the notice of July 11, 1949. These extensive hearings continued until January 31, 1951, when the Commission recessed in order to study the record and determine whether it should proceed with the hearings on Appendices C and D in the light of the evidence adduced on the general issues.

6. On March 22, 1951, the Commission issued its "Third Notice of Further Proposed Rule Making" (FCC 51-244).¹ In Appendices A and B of the third notice, the Commission set forth its conclusions based on the hearing record developed with respect to the general issues. The Commission at the same time afforded interested parties the opportunity to object to the conclusions in Appendices A and B by filing statements of objections.

7. Appendices C and D of the Third Notice contained a new proposed table of television channel assignments for the United States and the Territories and new illustrative assignments for Canada and Mexico. Pursuant to paragraph 12 of this notice, parties were permitted to file comments and oppositions to such comments as might be filed by other persons with respect to the proposals in Appendices C and D.

8. On June 21, 1951, the Commission issued its "Third Report" (FCC 51-640) in the above entitled proceedings. In this report, the Commission decided that it could not, at that time, take action to effect a partial lifting of the "freeze." On July 12, 1951, the Commission issued its "Fourth Report and Order" (FCC 51-693) which allocated to television broadcasting the frequency band 470-500 Mcs. On July 25, 1951, the Commission adopted its "Fifth Report and Order" (FCC 51-752) amending its "freeze order" to permit consideration on a case-to-case basis of applications by existing licensees and permittees for special temporary authority to increase power within certain defined limits.

9. On July 25, 1951, the Commission issued an order (FCC 51-739) cancelling the oral hearings which were scheduled to take place pursuant to the Third Notice.² This order provided all parties with an opportunity to file sworn statements or exhibits fully setting out their position in support of the pleadings they had filed. In addition, parties were permitted to submit sworn statements or exhibits directed against statements or exhibits offered by other parties and to file briefs with respect to any matter of fact or law raised by the evidence. The Commission also provided for oral pres-

¹ Hereinafter referred to as the "Third Notice".

² The procedural steps leading to the cancellation of the oral hearings are described in the order of July 25, 1951 (FCC 51-739).

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entations in addition to the submission of sworn statements or exhibits with respect to any issue which in the Commission's judgment could not be satisfactorily considered and disposed of without oral presentation.

10. The order of July 25, 1951, also provided:

In view of the fact that the issues raised by Appendices A and B of the Third Notice of Further Proposed Rule Making (FCC 51-244) are interrelated with those raised by the issues to be determined in the remaining portion of these proceedings, and in order to permit parties to make a full presentation of their cases, the Commission has decided not to finalize Appendices A and B at this time. However, sworn statements or exhibits filed pursuant to paragraph 5 above must be consistent with Appendices A and B, with the following express exception: If a comment or opposition with respect to Appendices C and D of the Third Notice deviates from Appendices A and B, a sworn statement or exhibit inconsistent with Appendices A and B may be filed pursuant to paragraph 5 above if such statement or exhibit is inconsistent with Appendices A and B only to the extent that the comment or opposition is inconsistent with Appendices A and B.

11. Upon consideration of the entire record in this proceeding, the Commission is now in a position to issue a final report with respect to the matters covered by Appendices A, B, C, and D of the Third Notice.

GENERAL CONSIDERATIONS SUPPORTING THE ADOPTION OF A TABLE OF ASSIGNMENTS FOR THE TELEVISION SERVICE

12. Toward the close of the war in 1945, when it appeared that the emergence of television as a regular broadcasting service was imminent, the Commission conducted a rule making proceeding (Docket 6780) resulting in the adoption of the existing television rules and standards, including the present Table of Assignments.⁶ This earlier table which employs VHF frequencies only, has served as a framework for the growth thus far of the television service. It has been urged in this proceeding that as a matter of policy⁷ we should abandon the concept of a nationwide table of channel assignments and permit applicants from any community to apply for the use of any channels provided certain general engineering criteria were met. Upon careful consideration of the record in this proceeding we are convinced that the public interest requires our continued adherence to the concept of a table of channel assignments as the most effective method for assuring a fair distribution of television service throughout this country.

13. The Communications Act of 1934, among other things, establishes as a responsibility of the Commission the "making available to all people of the United States, an efficient, nationwide,

⁶In FM also the Commission decided that the optimum distribution of stations could best be accomplished by a Table of Assignments.

⁷The Commission has already determined in its Memorandum Opinion of July 13, 1951 (FCC 51-709) that it has legal authority to prescribe such a Table of Assignments as part of its rules.

radio service" (section 1), and the effectuation of the distribution of radio facilities in such a manner that the result is fair, efficient and equitable and otherwise in the public interest from the standpoint of the listening and viewing public of the United States (sections 303 and 307b). Our conclusion that these standards can best be achieved by the adoption of a Table of Assignments is based upon three compelling considerations: A Table of Assignments makes for the most efficient technical use of the relatively limited number of channels available for the television service. It protects the interests of the public residing in smaller cities and rural areas more adequately than any other system for distribution of service and affords the most effective mechanism for providing for noncommercial educational television. It permits the elimination of certain procedural disadvantages in connection with the processing of applications which would otherwise unduly delay the overall availability of television to the people. Each of these factors is discussed below.

14. One of the principal reasons for an engineered Table of Assignments incorporated into our rules is that it permits a substantially more efficient use of the available spectrum. It is clear that, mathematically, once a fixed station separation has been agreed upon, the maximum number of stations which can be accommodated on any given channel becomes fixed. In practice this theoretical maximum cannot be achieved since the location of cities capable of supporting such stations will not follow any such regular pattern of location. But an Assignment Table drawn upon an examination of the country as a whole can confidently be expected to more closely approximate the mathematical optimum, than would assignments of stations based upon the fortuitous determinations of individual applicants interested solely in the coverage possibilities in a particular community irrespective of the effect of such assignments on the possibility of making assignments in other communities. We are convinced that only through an engineered Table of Assignments can areas receiving no service or inadequate service be kept to a minimum.

15. In our opinion there is an equally significant reason why a Table of Assignments should be established in our rules. For while the record in this proceeding demonstrates that the desire for broadcasting service from local stations, reflecting local needs and interests is widespread, experience has shown that many of the communities which cannot now support television stations but would eventually be able to do so, will in the absence of a fixed reservation of channels for their use, find that available frequencies have been preempted. The same is true with respect to the establishment of any significant number of noncommercial educational stations. It might, of course, be possible to achieve these results by allocating a large block of frequencies for these smaller cities and noncommercial educational television without specifying the assignment location of particular

channels. But we are convinced that this could only be done at the expense of unnecessarily reducing the total number of channels available to meet other television needs.

16. A further consideration compels us to adopt the table. When we resume the processing of applications for television stations, we expect to have on file an exceedingly large number of applications. We find that in the absence of a fixed Assignment Table it would be unduly complex—and perhaps impossible—to decide all conflicting demands among communities in individual licensing proceedings. Once it is recognized that these conflicting demands are interrelated, it becomes apparent that they can most satisfactorily be decided in one hearing. Moreover, a question is raised in view of the decision of the Supreme Court in *Ashbacker Radio Corp. v. Federal Communications Commission*, 326 U.S. 327, whether it would not be necessary as a matter of law to decide all these cases in one or several very large proceedings. Accordingly, we find that the determination of the questions relating to the equitable distribution of facilities among the cities and states in one rule making proceeding such as we have here conducted was conducive to the best dispatch of our business, satisfied the ends of justice and was required in the public interest.

17. It is contended that the establishment of a Table of Assignments such as has been adopted herein does not provide sufficient flexibility in the assignment of channels as to enable us to recognize economic, geographic, population and other pertinent differences between communities and areas. This is in effect an argument that a Table of Assignments cannot possibly achieve results which are as much in the public interest, convenience and necessity, or as "fair, efficient and equitable" as the "application" or "demand" method of assigning channels. But it has not been in any wise demonstrated by anyone making this contention that the end result of the claimed "flexibility" for the "application" or "demand" method of assigning television channels throughout the country will be a more fair, or more equitable, or a more efficient assignment of television facilities throughout the country. Indeed, it is almost self evident that assignments made upon the "application" or "demand" method necessarily leads to results which do not adequately reflect on a nation-wide basis significant comparative needs as well as differences among communities throughout the country. We find no merit in the contention that by the adoption of a table we have generally or specifically disregarded any pertinent public interest factors. We have given parties a full opportunity to present comments and evidence with respect both to the basic principles and standards underlying the table and with respect to proposed assignments for specific communities. Particularly, where parties did not think our proposed assignments were fair or equitable, or where they felt that we have improperly assigned channels to individual communities, they have been afforded an opportunity to establish their

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contentions in this hearing. All these objections and the relevant comments and evidence have been most carefully considered in connection with our decision herein.

18. In view of the foregoing, we find that the public interest requires the establishment of a Table of Assignments such as we have adopted herein.

THE CHANNELS

Use of the VHF

19. Since the deletion of Channel 1 in 1948 the Commission has allocated 12 channels, Channels 2-13 in the 54-216 mc band, for use by the television broadcast service. The Commission's Third Notice proposed to continue this allocation.

20. Two parties filed comments pursuant to paragraph 11 of the Third Notice objecting to the fact that the Commission has not provided additional VHF channels. Allen B. DuMont Laboratories, Inc.,⁵ objects that no finding was made on the feasibility of allocating 1 or more additional VHF channels. A. Earl Cullum, Jr., objects that an additional television channel was not allocated in the frequency range from 72 to 78 mcs.

21. In order to allocate additional VHF channels to the television service, it would be necessary to delete frequencies from one or more of the other radio services which have been allocated frequencies in this portion of the radio spectrum. While there is testimony in the record as to the possibility and alleged desirability of such a reallocation of frequencies, this proceeding has included no issue or proposal by the Commission or the parties for the reallocation of specific frequencies nor any evidence evaluating the comparative needs of the various radio services for the pertinent VHF frequencies. Accordingly, this proceeding affords no basis for a decision withdrawing frequencies from other services (both government and nongovernment) for the purpose of creating additional VHF television channels.

Utilization of the Entire UHF Television Allocation

22. In the Third Notice, the Commission stated with respect to the utilization of the UHF bands:

B. Utilization of entire UHF band. In its Notice of Further Proposed Rule Making issued on July 11, 1949, the Commission proposed to assign forty-two 6-megacycle channels (14 through 55) in the lower portion of the UHF band for commercial television broadcasting. The Commission proposed to assign 32 of the above UHF channels for use by metropolitan stations and

⁵In 1948 during the first part of these proceedings DuMont suggested a means of obtaining additional VHF channels by the use of government frequencies. Since DuMont did not refer to this proposal in the comment filed pursuant to the Third Notice, no further consideration is being given to that proposal. See also paragraph 4 of the Notice of Further Proposed Rule Making issued July 11, 1949, in this proceeding (FCC 49-948).

⁶The UHF band is defined to include the frequency range 300 mc-3000 mc. Television is allocated that portion of the UHF band between 470 and 890 mcs.

the remaining 10 channels for use by community stations. During the hearings conducted by the Commission with respect to the general issues in the pending television proceedings, testimony was presented which favored the allocation of the entire UHF band for commercial television broadcasting.

Although some testimony was presented which favored the allocation of a portion of the UHF band at this time pending the acquisition of additional data, greater support was given to the proposal to assign television channels in the entire UHF band for immediate use. It was urged that a need existed for additional commercial television channels; that such an allocation would encourage developments in UHF equipment; and that due to problems not previously considered, i. e., oscillator radiation, intermodulation, image interference, etc., more channels were necessary to provide an adequate number of usable channels. Some testimony was presented to the effect that the allocation of the lower portion of the UHF band was preferable because better coverage and equipment performance could be expected there. On the other hand, there was testimony to the effect that differences would not be appreciable throughout the entire UHF band. In any event, the effect of such differences on the optimum utilization of the band are likely to be small. Accordingly, the Commission has concluded that allocation of the entire UHF band for television broadcasting on a regular basis would result in the maximum utilization of television channels in the United States and would be in the public interest.

23. Comments in support of the above proposal have been filed by the American Broadcasting Company and RCA-NEC. The great demand for television service both by commercial and non-commercial educational interests evidenced in the portion of the proceeding dealing with Appendices C and D of the Third Notice clearly supports the use at this time of the entire UHF television allocation for regular television operations. No objection to the proposal was filed. Accordingly, the Commission is herewith finalizing the allocation of the entire UHF television band for use at this time by television on a regular basis.

24. The Commission's Third Notice left undecided the manner in which the band 470 to 500 mc would be allocated. At that time the Commission had not yet determined whether that band should be allocated to multi-channel, broadband common carrier mobile radio service or to television broadcasting. In the fourth report and order in these proceedings (FCC 51-693) the Commission allocated the 470-500 mc band for television broadcasting. The grounds for its decision are set forth fully in the fourth report and order. Accordingly, the Commission is now in a position to make available for the television broadcast service 70 UHF channels (Channels 14 through 83), located between 470-890 mc.

25. Statements were filed by Mercer Broadcasting Company, Trenton, New Jersey; Lehigh Valley Television, Inc., Allentown, Pennsylvania; Radio Wisconsin, Inc., Madison, Wisconsin; and Presque Isle Broadcasting Co., Erie, Pennsylvania, contending, among other things, that all commercial television stations should be assigned to the UHF band. The statements allege that many of the economic and competitive problems which would arise because televi-

sion broadcasting will be expanded into the UHF portion of the spectrum would be obviated if no commercial television broadcasting were permitted in the VHF. These objections, however, do not point out any specific testimony or evidence to support the large scale reallocations and reassessments which would thereby be required nor do they make any concrete proposal. We are not, moreover, convinced that an adequate showing has been made that sufficient spectrum space would be provided for an adequate nation-wide television service if only the UHF portion of the spectrum is allocated for commercial television broadcasting. Accordingly, we have decided that commercial television operations should be provided for in both bands of the spectrum allocated for television broadcasting.

The Use of Channels 66-83 (782-890 Mc.)

26. In making up the Table of Assignments proposed in the Third Notice the Commission made specific assignments to particular cities and communities only on Channels 2 through 65. Channels 66 to 78 or 83⁷ were designated as flexibility channels and no specific assignments to individual cities or communities were made on these channels. It was provided in the Third Notice that persons desiring to file an application for a station in a community which (1) is not listed in the Table of Assignments and (2) is not eligible for an assignment, without the necessity of rule making proceedings, might file an application for a station on one of the flexibility channels without further rule making. It was provided, however, that stations on flexibility channels could not be applied for, in this manner, in any community assigned a channel in the table or which was otherwise eligible for such an assignment without further rule making under the 15-mile rule.⁸

27. In addition to the use of flexibility channels as set forth above, the Third Notice provided for the use of flexibility channels for experimentation in stratoscopic and polycasting. As has been pointed out in another portion of this Report no comments have been filed pursuant to paragraph 11 of the Third Notice with further reference to stratoscopic or polycasting. Several of the parties,

⁷The use of the 470-500 mc band was still under consideration at the time of the issuance of the Third Notice.

⁸The Third Notice, as amended by FCC 51-410, provided:

"A channel assigned to a community in the Commission's Table of Television Assignments shall be available, without the necessity of rule making proceedings, to any other community which is located within 15 miles of the assigned community and which has no assignment of its own provided the minimum separations set forth in paragraphs 'E' and 'G' herein are maintained."

⁹Communications Measurements Laboratories, Inc., New York; Radio Kentucky, Inc., Louisville, Kentucky; Radio Virginia, Inc., Richmond, Virginia, and Kingston Broadcasting Corporation, Kingston, New York, all have filed objections which request that the Commission assign all of the UHF band allocated to television and leave no channels for use as flexibility channels. DuMont proposed that channels in the 782-890 mc band be made available for use by any applicant.

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however, have made proposals for the use of Channels 66-83 in a manner other than that provided for in the Third Notice. Objection has been made to the proposal of the Commission to set aside some of the UHF for use as flexibility channels and parties have requested that the Commission at this time assign all of the channels in the UHF to specific communities. Two arguments are made. First, that certain specific communities have present need of an assignment that only can be established if use is made of Channels 66-83 for specific assignments. The other contention is that if all of the 782-890 mc band is not fully assigned at this time an inefficient use will be made of the channels available in this band.

28. At the outset it should be pointed out that the provision for flexibility channels (Channels 66-83) in the Third Notice was itself a reservation, although not a specific reservation for particular cities or communities, made to assure that channels will be available for cities and communities not otherwise provided for on Channels 2-65 of the Table of Assignments, particularly the smaller cities and communities of the country. Clearly, the Commission should leave some of the spectrum allocated to television unassigned. For while the Commission may, upon the basis of the evidence, viewed in the light of its experience with broadcasting, make reasonable provision for television facilities in the various communities of the country, it cannot predict with complete accuracy every community in which there may eventually develop demand for television. Accordingly, it is desirable to leave a portion of the spectrum allocated to television unassigned.

29. We therefore adhere to our proposal in the Third Notice that the whole of the spectrum allocated to television should not be assigned at this time to specific cities or communities. As a matter of fact, it is clear from inspection of the table adopted herein that possible assignments have not been made on Channels 2-65 as well as on Channels 66-83. We recognize, however, that need may exist at this time for the assignment of additional channels to individual cities and communities even though they have already been assigned channels in the table. Therefore, where a request has been made for the assignment of a channel to an individual community, we have on a case-to-case basis considered whether such an assignment should be made in the Table of Assignments. We wish to point out, however, that the Commission must act carefully in considering assignments to communities that already have assignments, particularly on Channels 66-83. The number of assignments that can physically be made on Channels 66-83, particularly in areas where cities are located close together, is indeed limited. Accordingly, it must be clearly and affirmatively demonstrated that a channel from the group 66-83 should be assigned at this time to a community which has assignments in the table before we will make an

additional assignment to the community. The portion of this spectrum left unassigned is intended to be used primarily in cities and communities without any assignments in the table and in situations where either noncommercial educational or commercial assignments are not included in communities listed in the table.

30. In view of the comments that have been filed and upon consideration of the whole record, we believe, however, we should not permit Channels 66-83 to be used solely on the basis of the filing of an application but should rather require applicants to secure an assignment in the table by rule making before the application for a station will be considered. By doing so we are in a position to minimize any inefficiency involved in the proposal made in the Third Notice.¹⁰ Accordingly, in the rules we have adopted herein, no application for a television station will be considered by the Commission if the channel requested is not listed as an assignment to the community involved in the Table of Assignments.

31. The Joint Committee on Educational Television suggested in a comment that the proposal with respect to flexibility channels be modified so as to permit an educational institution to make application for a noncommercial educational television station on Channels 66-83 in any community in which no channel has been reserved for such a station. The same proposal has been made for similar reasons by the Board of Regents of the University of the State of New York; the Public Schools, Springfield, Massachusetts; Gary Public Schools, Gary, Indiana; Utah State Agricultural College, Logan, Utah; the State of New Jersey; and the Connecticut State Board of Education. The effect of this proposal would be to permit Channels 66-83 to be used on an application basis for noncommercial educational purposes not only in cities which are not assigned a television channel under the table, but also in cities with commercial assignments but which do not have an educational reservation. No one has objected to these proposals.

32. We recognize that cities which do not have educational reservations or a noncommercial educational station in operation should have an opportunity to use any portion of the spectrum unassigned for such purpose. Accordingly, where an appropriate showing is made in a rule making proceeding, as indicated above, assignments in the table will be made for noncommercial educational stations where the community involved does not have an educational reservation

¹⁰ The manner in which Channels 66-83 may be assigned is already determined and limited to a substantial degree by the assignments in the table together with the minimum assignment spacing requirements adopted herein. Whatever the inefficiency that may remain, we believe that the flexibility retained by leaving some of the television spectrum unassigned is necessary and desirable in order that adequate provision can be made for smaller cities without assignments in the table and to provide for some future adjustment of the table.

and no noncommercial educational station is in operation.¹¹

THE EDUCATIONAL RESERVATION

33. Section VI of Appendix A of the Third Notice contained a statement that as a matter of policy certain assignments in the VHF and UHF would be reserved for the exclusive use of noncommercial television stations. Careful consideration has been given to the exceptions taken to this policy proposal in comments filed by several parties¹² pursuant to paragraph 11 of the Third Notice. For the reasons set forth below, the Commission has concluded that the record does support its proposal¹³ and it is hereby adopted in the public interest as the decision of the Commission.

34. The only comments directed against the proposal which fulfill the requirements of paragraph 11 of the Third Notice are those filed by NARTB-TV and Allen B. DuMont Laboratories, Inc. The others do not specify their objections nor do they cite the evidence on which their objections are based. It is difficult to ascertain in some cases whether the objection is in fact based upon the view that there is a failure of the record to support the proposal or upon some other general disagreement with the proposal. Since, however, the comments filed by NARTB-TV and Du-

¹¹ In recognition of the fact that the unassigned portions of the spectrum are being reserved primarily for cities and communities without assignments or without any non-commercial educational or commercial assignments, we have below provided an exception to the general one year ban on amendment of the Table of Assignments, so that petitions to amend the table will be considered and acted on in this one year period upon petition (1) for assignment of a channel where no assignment has been made in the table to a community, and the community is not eligible for an assignment under the 15 mile rule, (2) for assignment of a noncommercial educational channel where no such assignment under the Table of Assignments is available in the community involved, or (3) for assignment of a commercial channel to any community listed in the table to which no commercial assignment has been made.

¹² These parties are: NARTB-TV, Allen B. DuMont Laboratories, Inc., Radio Kentucky, Inc., Capitol Broadcasting Co., and The Tribune Co. Some comments were filed which challenged the power of the Commission under the Communications Act to reserve channels for this purpose. Such contentions have been disposed of by the Commission's Memorandum Opinion of July 13, 1951 (FCC 51-709). Other comments objected to the reservation of a channel in a given community. These objections have been considered in another portion of this report. The Joint Committee on Educational Television filed comments in support of the educational reservation, as did many individual educational institutions, and other civic nonprofit organizations.

¹³ Communications Measurements Laboratories, Inc., has taken issue with the use of the words "nation wide" in describing the reservation of channels for this purpose. The proposal is self-explanatory in this respect. Although channels have been reserved throughout the nation, the reservation does not set apart any single channel or group of channels on a nation-wide basis.

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Mont clearly cover all the objections to the proposal made by any of the other parties, a discussion of their exceptions will cover those of the other parties, and it will not be necessary to determine whether the latter comments must be rejected for failure to comply with the provisions of paragraph 11 of the Third Notice.

35. In view of the rather comprehensive and detailed exceptions taken to section VI of Appendix A it is necessary to review the nature and extent of the Commission's proposal in the Third Notice. An extensive hearing was held by the Commission on the issue: whether television channels should be reserved for the exclusive use of noncommercial educational stations. A total of 76 witnesses testified on this issue.⁴⁴ Among the subjects upon which the proponents of reservation presented evidence were: the potential of educational television both for in-school and adult education, and as an alternative to commercial programming; the history of education's use of other broadcast media and of visual aids to education; the possibility of immediate or future utilization of television channels by public and private educational organizations and the methods whereby such utilization could be effectuated; the type of program material which could be presented over non-commercial television stations; the history of and prospects for educational organizations' securing broadcast opportunities from commercial broadcasters; and the number of channels, both UHF and VHF, which would be required to satisfy the needs of education throughout the country. The witnesses who opposed the principle of reservation, contending that it was unlikely that educators would make sufficient use of the reserved channels to warrant withholding them from commercial applicants, and that the best results could be achieved by cooperation between educational groups and commercial broadcasters, testified principally about the past record of educators in broadcasting, the cost of a television station, and cooperation between commercial broadcasters and educational institutions.

36. On the basis of the record thus compiled, the Commission concluded, as set forth in the Third Notice, that there is a need for noncommercial educational television stations; that because educational institutions require more time to prepare for television than commercial interests, a reservation of channels is necessary to insure that such stations come into existence; that such reservations should not be for an excessively long period and should be surveyed from time to time; and that channels in both the VHF and UHF bands should be reserved in accordance with the method there set forth.

⁴⁴ Of this number, all but five were called by educational organizations or testified in their own behalf in support of the position taken by such organizations in favor of an affirmative resolution of the question. Two other witnesses were in favor of the principle of reservations but differed with witnesses presented on behalf of educational groups with respect to the manner and extent of reservation.

37. It has been contended that the record in this proceeding fails to support the Commission's proposal in three basic respects; that it has not been shown that educational organizations will, in fact, require a longer period of time to prepare to apply for television stations than commercial broadcasters; that it should have been found that the reservation of channels for this purpose will result in a waste of valuable frequency space because of nonusage and because of the limited audience appeal that educational stations will have; and that no feasible plan for stable utilization of channels by educational institutions has been advanced, particularly with respect to the problem of licensee responsibility.

38. None of the commenting parties have contended that the record has failed to support the findings of the Commission in the Third Notice that, based on the important contributions such stations can make in the education of the in-school and adult public, there is a need for noncommercial educational stations. The objections to the Commission's proposal must, therefore, refer to the desire and the ability, as evidenced in the record, of the educational community to construct and operate such stations.⁴⁵ We conclude that the record shows the desire and ability of education to make a substantial contribution to the use of television. There is much evidence in the record concerning the activities of educational organizations in AM and FM broadcasting. It is true and was to be expected that education has not utilized these media to the full extent that commercial broadcasters have, in terms of number of stations and number of hours of operation. However, it has also been shown that many of the educational institutions which are engaged in aural broadcasting are doing an outstanding job in the presentation of high quality programming, and have been getting excellent public response. And most important in this connection, it is agreed that the potential of television for education is much greater and more readily apparent than that of aural broadcasting, and that the interest of the educational community in the field is much greater than it was in aural broadcasting. Further, the justification for an educational station should not, in our view, turn simply on account of audience size. The public interest will clearly be served if these stations are used to contribute significantly to the educational process of the nation. The type of programs which have been broadcast by educational organizations, and those which the record indicates can and would be televised by educators, will provide a valuable complement to commercial programming.

⁴⁵ DuMont, in its Comments in Opposition to Comments and Proposals of Other Parties, has submitted the results of a survey which bear upon this question. Insofar as the survey bears upon any specific reservation, DuMont had the opportunity to present it in the portion of the hearing dealing with Appendix C. The Third Notice was not intended to permit the filing of new material on the matters which were already the subject of hearing. DuMont had an opportunity to present this type of evidence in the general phase of the proceeding.

39. We do not think there is merit in the contention that the record, with respect to the general phase of the hearing, does not support the general principle of a reservation of channels for educational purposes as set out in the Third Notice because it does not contain detailed information with regard to the desire, ability and qualifications of the educational organizations to construct a noncommercial educational station, or the competing commercial interests which desire to bring television service to the public. In preparing a proposed Assignment Table for the entire nation which would provide the framework for the growth of television for many years to come, we could not limit our perspective to immediate demand for educational stations under circumstances where all communities did not have an opportunity to give full consideration to the possibilities of television for educational purposes and to mobilize their resources. Moreover, evidence of specific demand for educational television was submitted for several communities in the general phase of the hearing, and in addition there was presented an estimate of the number of channels required for this purpose for one section of the country based upon the size of the various communities and their general educational requirements. We do not think it unreasonable to believe that general principles of assignment may be derived from such evidence, and that such principles may validly be applied to comparable communities, for the purposes of drawing up a nationwide assignment plan. See, e. g., The New England Divisions Case, 261 U. S. 184, 197-199 (1923).

40. Moreover, the Third Notice provided for the contesting of specific reservations in any community. The Assignment Table adopted below has been prepared after consideration of the specific evidence in support of, as well as in objection to, specific proposed reservations and after consideration of the overall needs of all communities for television service.

41. The great preponderance of evidence presented to the Commission has been to the effect that the actual process of formulating plans and of enacting necessary legislation or of making adequate financing available is one which will generally require more time for educational organizations than for commercial interests. The record does, of course, show that there are some educational institutions which are now ready to apply for television broadcasting licenses, but this in no wise detracts from the unavoidable conclusion that the great mass of educational institutions must move more slowly and overcome hurdles not present for commercial broadcasters, and that to insure an extensive, rather than a sparse and haphazard development of educational television, channels must be reserved by the Commission at this time. There is moreover, abundant testimony in the record that the very fact of reserving channels would speed the development of educational television. It was pointed out that it is much easier for those seeking to construct educational television stations to raise funds and get other nec-

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essary support if the channels are definitely available, than if it is problematical whether a channel may be procured at all.

42. With regard to possible waste of the reserved channels by nonuse, it is contended that evidence offered in the general portion of the hearing, concerning the record of performance of non-commercial educational agencies in aural broadcasting, and their plans and abilities to meet the installation and programming costs of television, can lead only to the conclusion that waste of limited spectrum space through non-usage will result from the reservation of channels for noncommercial educational stations. To whatever extent the position taken in these exceptions is that any immediate nonuse of channel space available for television constitutes a waste of channels, the Commission cannot agree. The basic nature of a reservation in itself implies some nonuse; to attribute waste of spectrum to the Commission's proposal concerning the use of certain channels by noncommercial educational stations without attributing it to those assignments in the table for smaller cities, which may not be used for some time, is misleading. The very purpose of the Assignment Table is to reserve channels for the communities there listed to forestall a haphazard, inefficient or inequitable distribution of television service in the United States throughout the many years to come. Moreover, as pointed out in another portion of this report, the whole of the Table of Assignments including the reservations of channels for use by noncommercial educational stations is subject to alteration in appropriate rule making proceedings in the future, and any assignment, whether an educational reservation or not, may be modified if it appears in the public interest to do so.

43. We do not believe that in order to support our decision to reserve channels for noncommercial educational stations it is necessary that we be able to find on the basis of the record before us, in the general phase of the hearing, that the educational community of the United States has demonstrated either collectively or individually that it is financially qualified at this time to operate television stations. One of the reasons for having the reservation is that the Commission recognizes that it is of the utmost importance to this nation that a reasonable opportunity be afforded educational institutions to use television as a noncommercial educational medium, and that at the same time it will generally take the educational community longer to prepare for the operation of its own television stations than it would for some commercial broadcasters. This approach is exactly the same as that underlying the Assignment Table as a whole, since reservations of commercial channels have been made in many smaller communities to insure that they not be foreclosed from ever having television stations.

44. Although the record in the general phase of the proceedings does not contain any detailed showing on a community-by-community basis that the edu-

cational organizations have made detailed investigation of the costs incident to the construction and operation of television stations and of the exact sources from which such funds could be derived in the near future, nevertheless, the record, as a whole, does indicate that educational organizations in most communities where reservation has finally been made will actually seek the necessary funds. Furthermore, interested persons have had an opportunity to present evidence in the city-by-city portion of the hearings as to whether such funds will be sought or will become available in specific communities. It will admittedly be a difficult and time consuming process in most instances, but the likelihood of ultimate success, and the importance to the public of the objective sought, warrants the action taken. Several educational institutions, it was indicated on the record as early as the general portion of the hearing, had applied for television stations. The amounts of money spent by other public and private educational groups in aural broadcasting indicates that the acquisition of sufficient funds for television would not be an insurmountable obstacle. It has been shown, for example, that considerable sums have already been spent on visual aids to education. Television is clearly a fertile field for endowment, and it seems probable that sufficient funds can be raised both through this method and through the usual sources of funds for public and private education to enable the construction and operation of many noncommercial educational stations. As concerns the costs of operation there is the possibility of cooperative programming and financing among several educational organizations in large communities. The record indicates that educational institutions will unite in the construction and operation of noncommercial educational television stations. Such cooperative effort will, of course, help to make such stations economically feasible. The fact that somewhat novel problems may arise with respect to the selection and designation of licensees in this field does not—as some have contended—constitute a valid argument against the concept of educational reservations.

45. Several alternative methods for utilizing television in education have been presented to the Commission, but we do not think that any of them is satisfactory. One proposal is to utilize a microwave relay or wired circuit system of television for in-school educational programs. It appears that the cost of a wired circuit for the schools in larger cities might be prohibitive; but the determinative objection to such a proposal is that it would ignore very significant aspects of educational television. It is clear from the record that an important part of the educator's effort in television will be in the field of adult education in the home, as well as the provision of after school programs for children.

46. The NARTB-TV contended that the solution lay in the voluntary cooperation of educators and commercial broadcasters in the presentation of educational programs on commercial fa-

cilities. We conclude, however, that this sort of voluntary cooperation cannot be expected to accomplish all the important objectives of educational television. In order for an educational program to achieve its purpose it is necessary that broadcast time be available for educators on a regular basis. An audience cannot be built up if educators are forced to shift their broadcast period from time to time. Moreover, the presentation of a comprehensive schedule of programs comprising a number of courses and subjects which are designed for various age and interest groups may require large periods of the broadcast day which would be difficult if not impossible to obtain on commercial stations.

47. Another alternative was proposed by Senator Edwin C. Johnson of Colorado. This proposal is elaborated in the Senator's statement:

It is my belief as I have repeatedly said that the Commission could and should impose a condition on all television licenses that a certain amount of time be made available for educational purposes in the public interest as a sustaining feature. In this manner, television can become available for educational work now without saddling schools with the enormous burden and expense of constructing and operating a non-commercial educational station. * * * It is my considered opinion that the Commission can best serve the public interest and at the same time extend extremely profitable assistance to the educational processes of this country by imposing a condition in each television license issued which would require the availability of appropriate time for educational purposes.

48. It must be remembered that the provision for noncommercial educational television stations does not relieve commercial licensees from their duty to carry programs which fulfill the educational needs and serve the educational interests of the community in which they operate. This obligation applies with equal force to all commercial licensees whether or not a noncommercial educational channel has been reserved in their community, and similarly will obtain in communities where noncommercial educational stations will be in operation.

49. Aside from the question of the legal basis of a rule which would accomplish Senator Johnson's proposal, the Commission feels it would be impracticable to promulgate a rule requiring that each commercial television licensee devote a specified amount of time to educational programs. A proper determination as to the appropriate amount of time to be set aside is subject to so many different and complex factors, difficult to determine in advance, that the possibility of such a rule is most questionable. Thus, the number of stations in the community, the total hours operated by each station, the number of educational institutions in the community, the size of the community, and countless other factors, each of which will vary from community to community, would make any uniform rule applicable to all TV stations unrealistic. All things considered, it appears to us that the reservation of channels for noncommercial educational stations, together with con-

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tinued adherence by commercial stations to the mandate of serving the educational needs of the community, is the best method of achieving the aims of educational television.

Who May Be Licensed To Operate Noncommercial Educational Stations

50. While the Third Notice did not specify who would be eligible to own and operate a noncommercial educational station, the Commission has in the past restricted the ownership and operation of such stations to nonprofit educational organizations.

51. The United States Conference of Mayors and the Municipal Broadcasting System, City of New York, have in appropriate comments proposed that eligibility be extended to any municipality operating educational institutions. The Municipal Broadcasting System states that a "more expeditious management of educational television in the City of New York from an administration standpoint" would result if it were permitted to operate a television station. It further stated that "if the Municipal Broadcasting System is eligible to operate television facilities, the station can be utilized by all of the educational institutions over which it has jurisdiction, rather than having responsibility for the operation placed in a particular school."

52. The Commission is of the opinion that in any community where an independent educational agency is constituted, and is eligible under the Commission's rules to apply for a noncommercial educational television station, there are no compelling reasons for extending eligibility to municipal authorities. The continued operation by the Board of Education of the City of New York since 1939 of noncommercial educational station WNYE indicates that no insurmountable administrative barriers exist which would preclude the Board of Education as a potential licensee in the television field. Similarly, there is no evidence to indicate that the Board of Education of the City of New York, now eligible under the present rules, would give less access to other educational institutions were it the licensee of a television station than would the Municipal Broadcasting System were it eligible and granted a license. It should be noted that in any community the municipal authorities, or any other group, can take the initiative in constituting a consolidated television authority which would represent municipal educational institutions, private universities and other organizations concerned with education.

53. The Commission has, however, established in its rules an exception providing that where a municipality has no independently constituted educational entity which would be eligible under the rules, the municipality in such case will be eligible to apply for a noncommercial educational station. This exception is designed solely to meet those situations where the municipal authorities do not delegate educational authority but reserve to themselves the management of the municipal educational system.

Partial Commercial Operation By Educational Stations

54. In its comments the University of Missouri¹² requests that the Commission authorize " * * * commercial operation on the channels reserved for educational institutions to an amount equal to 50 percent of the broadcast day." It appears from the evidence that funds in the amount of \$350,000 are presently available to the University for the construction of a television station, but that no funds are available for the operation of such a station. Accordingly, the University requests that the Commission permit educational institutions to use the reserved assignments to operate stations on a limited commercial non-profit basis. It is urged that if its request is granted the following objectives will be attained:

A. More educational institutions will be in a position to construct and operate television stations throughout the country to the benefit of the public at large without materially affecting the strictly commercial stations;

B. Educational television stations will be able, through income received from commercial programs to better program their stations; and

C. That the commercial programs televised will break the monotony of continuous educational subjects so as to permit the stations to attract and hold audiences.

55. A similar proposal, that the Commission extend the reservation to include all educational institutions which are operated on a nonprofit basis, is made by the Bob Jones University (WLMU) Greenville, South Carolina. The Bob Jones University argues that " * * * the reservation of the privilege of a commercial income commensurate with the operating expense of the educational station * * * will result in the encouragement and aid to television broadcasting by educational institutions.

56. KFRU, Inc., Columbia, Missouri, opposed the request of the University of Missouri. In its reply to the University, KFRU states that it has no objection to the proposed reservation of Channel 8 for noncommercial educational purposes in Columbia, Missouri. However, it opposes the request of the University for partial commercial operation on the grounds that such an operation would give the educational institution unfair competitive advantages over a commercial licensee.

57. It is our view that the request of the University of Missouri and the Bob Jones University must be denied. In the Third Notice we stated:

In general, the need for noncommercial educational television stations was based upon the important contributions which noncommercial educational television stations can make in educating the people both in school—at all levels—and also the adult public. The need for such stations was justified upon the high quality type of programming which would be available on such stations—programming of an entirely dif-

ferent character from that available on most commercial stations.

A grant of the requests of the University of Missouri and Bob Jones University for partial commercial operation by educational institutions would tend to vitiate the differences between commercial operation and noncommercial educational operation. It is recognized that the type of operation proposed by these Universities may be accomplished by the licensing of educational institutions in the commercial television broadcast service. But in our view achievement of the objective for which special educational reservations have been established—i. e., the establishment of a genuinely educational type of service—would not be furthered by permitting educational institutions to operate in substantially the same manner as commercial applicants though they may choose to call it limited commercial non-profit operation.

58. The Joint Committee on Educational Television suggests in its final brief that, in communities where only one VHF channel is assigned, and that channel is reserved for use by a non-commercial educational station, the non-commercial educational station should be allowed to broadcast programs which at present are available only from commercial network services. This exception would apply until such time as a commercial Grade A service is available in the area.

59. On January 10, 1952, a Reply and Motion to Strike was filed by Peoria Broadcasting Company, Rock Island Broadcasting Company and Champaign News-Gazette, Inc., with respect to the above described proposal of the Joint Committee. On January 25, 1952, a response to the Joint Motions was filed by the JCET. In view of the fact that the proposal made by the Joint Committee was not previously raised in any of its prior pleadings, the Motion to Strike is granted and the proposal is being given no further consideration.

The Use of the VHF for Noncommercial Educational Television

60. The Commission's Third Notice proposed to reserve one of the assigned channels for noncommercial educational television use in all communities having a total of three or more assignments (whether VHF or UHF). Where a community had fewer than three assignments no reservation was proposed except in those communities which were designated as primarily educational centers, where reservations were made although only one or two channels were assigned. Except for educational centers, a UHF channel was proposed in those communities where there were fewer than three VHF assignments. In 26 of the 46 educational centers, the Commission proposed to reserve a VHF channel for educational use. In 23 of these 26 centers a VHF educational reservation was proposed where only one VHF channel was assigned to the community. Where three or more VHF channels were assigned to a community,

¹²See the discussion, elsewhere in this report, of the assignments in Columbia, Missouri.

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a VHF channel was proposed to be reserved except in those communities where all VHF assignments had been previously licensed. In those cases, the reservation of a UHF channel was proposed.

61. The Joint Committee on Educational Television in its comment has proposed that a VHF reservation for noncommercial educational institutions in place of a UHF reservation be considered in communities with less than three VHF assignments. On the other hand, some parties have argued that no assignments in the VHF be set aside as educational reservations. The Commission's Third Notice stated that the proposed reservations were not final and that consideration would be given to any specific proposal looking toward additions or deletions. After examining the comments and evidence filed pursuant to the Third Notice, the Commission remains of the view that the bases upon which it determined the apportionment of noncommercial educational assignments by communities are generally sound and should be continued. However, in particular cases the Commission concludes that the evidence warrants deviations from the proposals in the Third Notice, for the reasons stated in the city-by-city portion of this Report.

62. The Joint Committee on Educational Television also proposes that the Commission should specifically state that an educational interest is not to be foreclosed from applying for a VHF channel in the so-called "closed cities" where all VHF assignments have already been made. No properly qualified applicant is ever precluded from applying for any channel in the broadcast field on the expiration of the existing license. Thus, whether educational interests seek a commercial or noncommercial television operation, they are, just as other applicants, eligible to apply for licensed channels upon expiration of the license term of the stations involved.

ASSIGNMENT PRINCIPLES

The Basis of the Table of Assignments

63. In proposing the Table of Assignments set out in the Third Notice the Commission said that it had

* * * endeavored to meet the twofold objective set forth in sections 1 and 307 (b) of the Communications Act of 1934, to provide television service, as far as possible to all people of the United States and to provide a fair, efficient and equitable distribution of television broadcast stations to the several states and communities.

In attempting to carry out these objectives, the Commission set forth certain principles, in terms of priorities, underlying the Table of Assignments.¹¹ These principles were:

Priority No. 1: To provide at least one television service to all parts of the United States.

Priority No. 2: To provide each community with at least one television broadcast station.

¹¹ For a discussion of the legal power of the Commission to establish a Table of Assignments such as we are adopting here, see the Memorandum Opinion issued in this proceeding on July 13, 1951 (FCC 51-709).

Priority No. 3: To provide a choice of at least two television services to all parts of the United States.

Priority No. 4: To provide each community with at least two television broadcast stations.

Priority No. 5: Any channels which remain unassigned under the foregoing priorities will be assigned to the various communities depending on the size of the population of each community, the geographical location of such community, and the number of television services available to such community from television stations located in other communities.

64. The Commission has reviewed the above described principles in the light of the comments and evidence received in this proceeding. We believe it desirable to state in somewhat comprehensive form the various factors underlying the establishment of the television Assignment Table.

65. At the outset it should be clearly understood that no single mechanical formula was utilized in the construction of the Table of Assignments. With the above priorities in mind it was necessary to recognize that geographic, economic, and population conditions vary from area to area and even within the boundary of a single state; the possibility of assigning channels, for example, may differ as between the northern and southern segments or between the eastern and western parts of the same state. It must be emphasized, therefore, that in establishing the Table of Assignments it is not possible to follow a mechanical and rigid application of the basic principles or what was termed the "priorities" in the Third Notice.

66. In establishing a Table of Assignments we were faced at the outset with the significant fact that we could not make all assignments in the table within the VHF. The intermixture problem resulting from this situation is discussed below. Secondly, propagation characteristics in the VHF are different in some respects from those in the UHF. Primary consideration was given to the fact that the VHF can effectively cover large areas, and VHF was used wherever possible in larger cities since such cities have broad areas of common interest. To achieve the benefits of VHF the 12 VHF channels were distributed as broadly as possible. However, conflicting interests had to be adjusted. Thus, the Commission concluded that in order to achieve an equitable distribution of facilities, metropolitan centers with their large aggregations of people should be assigned more VHF channels than communities comprising fewer people. At the same time—and this is a basic element in the Commission's assignment plan—the Commission did not believe that large cities should receive an undue share of the relatively scarce VHF channels; the Table we have adopted herein reflects a substantial distribution of VHF assignments among smaller communities and sparsely settled areas.

67. The Assignment Plan for UHF channels was coordinated with and made complementary to the VHF assignment plan. The Commission has always recognized that even with an extensive scattering of VHF assignments, the 12 channels available are not sufficient to

meet the objective of providing television service to all the people. With the additional UHF channels, however, the Commission was able to formulate an assignment plan that has the potentiality of fulfilling the objective of Section 1 of the Communications Act. If all the VHF and UHF channels are utilized, there should be few, if any, people of the United States residing beyond the areas of television service. (See priorities 1 and 3.) Moreover, the table has gone far in fulfilling the needs of individual communities to obtain local television outlets. It has provided at least one assignment to over 1250 communities (see priority 2). And it has attempted where possible to provide each community with at least two assignments (see priority 4).

68. Examination of the Table of Assignments makes clear, that in seeking to arrive at an equitable distribution of assignments throughout the country, the Commission has given consideration to population as one of the important criteria for distribution of assignments. Thus, it will be seen that for the most part, the following table reflects generally the number of assignments made to cities falling within the indicated population groupings:

1950 population of cities (central city):	Number of channels (total VHF and UHF)
1,000,000 and above	6 to 10
250,000-1,000,000	4 to 8
50,000-250,000	2 to 4
Under 50,000	1 or 2

There are of course variations from this pattern because of the many factors and circumstances that had to be considered in connection with making a final judgment as to the exact number of assignments that should be made for any particular community. For example, consideration was given to the advantages of VHF channels for obtaining wide coverage. Also, it was considered more important for each of the several cities in an area to have at least one channel than for the largest of the cities to have the maximum number of channels indicated. And as a further example, cutting across the criterion of population size as a basis for the number of channels assigned to a particular city was the criterion of insuring an equitable distribution of facilities to the several States. Thus, the Commission has attempted to provide at least some VHF channels to all States even though in some cases an assignment might otherwise have been made to a large metropolitan center in an adjacent highly urbanized State.

69. The Commission also concluded that as a further assignment factor it should provide channels for noncommercial educational television service in 46 communities outside of metropolitan areas designated as "primarily educational centers." Certain of these communities were assigned one channel for noncommercial educational use, whereas they would otherwise not have been assigned any channel; others received an additional channel over and above the number of channels they would have otherwise received. Moreover, an attempt was made in so far as possible to assign a VHF channel to each of these

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educational centers for educational use. In all cases, however, the assignments have been made on the basis of the evidence in the record relating to the issues presented.

70. Allen B. DuMont Laboratories, Inc., was the only party in the proceedings to submit a national television assignment plan as an alternative to that contained in the Commission's Third Notice. In many respects the DuMont plan is similar to that of the Commission. With very few exceptions, both DuMont and the Commission make at least one television assignment to the same communities. Moreover, both DuMont and the Commission provide for intermixture of VHF and UHF channels in numerous communities. A detailed comparison of the proposed assignments community-by-community reveals the important fact that under both the DuMont and the Commission plan the great majority of communities would receive the identical number of VHF, UHF, or VHF and UHF assignments.

71. On the other hand, the DuMont assignment plan differs from that of the Commission in several important respects. The present section deals with these differences in the two plans in so far as they concern the basis for assignments. Elsewhere in the Report are discussed other differences between the DuMont plan and the Assignment Table adopted herein.

72. DuMont's major criticism of the Commission's proposed Table of Assignments was that it allegedly failed to provide adequately for the commercial television needs of large cities. In its comment of May 7, 1951, DuMont stated its agreement with Priority No. 1 but objected to Priorities Nos. 2, 3, and 4. DuMont alleged that these priorities were unrealistic in that they failed to take adequate account of the need and demand for services in large cities; that they failed to recognize present and long-range differences as between VHF and UHF; and that they were harmful to the future of networking. As an alternative to the Commission's priorities, DuMont recommended the following two priorities:

(a) Provide channels which will permit one service without regard to population.

(b) Encourage fair economic and equitable operation of television service through assignment to major metropolitan service areas of not less than four VHF channels when technically feasible under the proposed standards and with further distribution in allocation in relationship to population of communities in the service areas; provision being made for transfer of unused frequencies and adjustment by subsequent assignment of specific "flexibility channels."

73. A basic objective of the DuMont assignment plan is to provide major metropolitan centers with multiple VHF stations. In particular, DuMont seeks the assignment of four VHF channels to such communities—an objective directly related to DuMont's contention that this is necessary to promote network competition. By the assignment of four VHF channels in the largest

markets, DuMont assumes that it would thereby obtain an outlet for its network operations in the most important centers. Contrariwise, DuMont fears that if only one or two VHF channels are assigned in these markets, it would be unable to obtain affiliates in such centers and would be in the position of dependence on UHF outlets. Because of the time required to develop UHF stations, DuMont contends that it would be placed at a severe competitive handicap in relation to other networks.

74. In its sworn statement of August 17, 1951, DuMont does not specifically repeat the recommendation in its original comments with respect to a revision of the Commission's priorities. Rather, DuMont attempts to show that both its own assignment plan and the FCC plan seek the same dual objective. DuMont describes this objective, as follows:

(1) To provide television service, as far as possible, to all people of the United States; and

(2) To provide the most services to the most people.

75. After allegedly showing that the two plans are alike in objective, DuMont attempts to prove that its plan is superior to that of the Commission in more nearly realizing the common objective. DuMont states that both plans meet DuMont Principle 1 in that they provide for service to all people of the United States. However, DuMont emphasizes that its own plan is superior in providing more VHF service to the larger centers, and that it is therefore more efficient in producing a highly competitive network situation than the FCC plan.

76. Columbia Broadcasting System, Inc., in its comment of May 1951, and later in its evidence presents views generally similar to those of DuMont in respect to the need for providing additional commercial VHF stations in key economic areas. It calls attention to the need for an alternative assignment policy of insuring to the maximum extent possible a competitive commercial television service. However, CBS does not suggest any specific system of priorities but rather recommends that the Commission's priorities be applied in a "flexible" manner. Specifically, CBS urges that an additional commercial VHF channel should be assigned to Boston, Chicago, and San Francisco.

77. As set forth above, the Commission has concluded that larger cities should be assigned more VHF channels than communities comprising fewer people. However, the Commission cannot agree with the DuMont principle that an overriding and paramount objective of a national television assignment plan should be the assignment of four commercial VHF stations to as many of the major markets as possible. The Commission is of the view that healthy economic competition in the television field will exist within the framework of the Assignment Table adopted herein. Moreover, in the assignment plan adopted, the Commission has taken into account other significant factors. For example, the Commission in fulfilling what it considers the mandate of the Communications Act to provide an equitable distri-

bution of facilities has attempted to provide at least some VHF channels to each of the states, although in some cases this was done where an assignment might otherwise have been made to a large metropolitan center in an adjacent state.

78. A second policy difference between the DuMont and Commission assignment plans lies in their contrasting views with respect to the importance of individual communities having television assignments. The DuMont view is that emphasis should be placed on locating the assignments, particularly VHF channels, so that the largest number of people will have television service but not necessarily that the largest number of communities should have one or more television stations of their own.¹² This view derives from DuMont's premise that the major cities with their large populations are certain to be able to support expensive television facilities, and that smaller communities which are within appropriate range of these cities should obtain service from stations in the large cities, rather than attempt to support stations with their own less substantial economic resources.

79. The Commission, on the other hand, believes that on the basis of the Communications Act it must recognize the importance of making it possible with any table of assignments for a large number of communities to obtain television assignments of their own. In the Commission's view as many communities as possible should have the opportunity of enjoying the advantages that derive from having local outlets that will be responsive to local needs. We believe with respect to the economic ability of the smaller communities to support television stations that it is not unreasonable to assume that enterprising individuals will come forward in such communities who will find the means of financing a television operation. The television art is relatively new and opportunity undoubtedly exists for initiating various methods of reducing television costs.

80. Another difference in assignment principle as between the DuMont and FCC plan lies in respect to the assignments made to the "primarily educational centers." DuMont opposes any reservation for noncommercial educational television stations and under the DuMont plan all of its channel assignments would be available for commercial use.¹³ With reference to the educational centers, DuMont does not follow

¹² While DuMont as a matter of general principle takes this position in its own assignment plan, DuMont makes at least one assignment to practically every community listed in the Commission's Table of Assignments contained in the Third Notice.

¹³ Contrariwise, the number of commercial VHF channels in the Commission plan is reduced because of the Commission's policy of reserving one VHF channel for noncommercial educational television use in every community having at least three VHF assignments, unless all of these assignments had been previously licensed. While this principle does not determine in which community an assignment should be made, it is an important factor to be considered in any comparison of the number of commercial VHF channels in the DuMont and the FCC Assignment Tables.

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the Commission's assignment principle of providing in so far as possible a VHF channel to these communities, which would be reserved for use by noncommercial educational television stations. Thus in 10 of the educational centers to which the Commission has assigned a VHF channel DuMont proposes to assign a UHF channel.

81. The Commission finds that the principles of assignment which DuMont advocates are inadequate in that these principles do not recognize specifically the need to provide an equitable apportionment of channels among the separate states and communities and they do not provide adequately for the educational needs of the primarily educational centers.

82. With respect to the recommendation of CBS that the Commission apply its priorities in a flexible manner, the Commission, as previously indicated, formulated its Table of Assignments on the basis of taking into account numerous factors and objectives and did not apply the priorities in a rigid, mechanical way. With respect to the needs of larger communities for additional VHF assignments as set forth by CBS, the Commission believes that in its final Table of Assignments it has provided for these needs to the extent possible, consistent with its other objectives and criteria viewed in the light of the record. With respect specifically to the CBS request for additional commercial VHF assignments in Chicago, Boston, and San Francisco, these requests are dealt with in the section of the Report which discusses assignments to individual cities.

83. Whereas both DuMont and CBS contend that the Commission's priorities do not make adequate provision for the competitive and commercial aspects of television, the Joint Committee on Educational Television alleges that the Commission's priorities were deficient in not specifically recognizing noncommercial educational television. The Joint Committee urges that an additional priority should be established between Priority No. 3 and Priority No. 4 reading as follows:

To provide a noncommercial educational television service to all parts of the United States by the reservation of frequencies for this purpose.

84. It is not clear from the above statement as to whether or not the Joint Committee actually is proposing an additional assignment principle. An assignment principle refers to: (a) The number of television channels that individual communities should receive, and (b) whether the channels should be in the VHF or the UHF band. The Commission has reserved channels for noncommercial educational television use on an extensive basis throughout the United States, but not as a principle of assignment. That is to say, the Commission decided first that a particular community should have three channels on the basis of various criteria, and only subsequently did it decide that one channel should be reserved for educational use. As discussed previously, in one main exception the Commission treated the ed-

ucational need as a principle of assignment: in the special case of the 46 "primarily educational centers." In this case, the fact of being an educational center influenced the Commission's decision as to the total assignments to these communities, and also influenced its determination as between the assignment of VHF and UHF channels. Moreover, upon request in this proceeding and a proper showing, the Commission has added an assignment as an educational reservation in various communities even though these assignments had not been made to the community in the Third Notice. At any event, in view of our decision discussed elsewhere in this Report to avoid any reference to priorities as such in the Commission's Rules, no further action is necessary with respect to the request of JCET for an additional priority.

Prediction of Service Areas and Interference

85. In the Third Notice the Commission stated with respect to prediction of service areas and interference:

Methods for describing service areas and interference are set forth in Appendix B. The methods therein described include the propagation of radio waves through the lower atmosphere only. These propagation charts are based on an extensive number of measurements made at various locations over a long period of time. It is recognized that these charts may have to be revised from time to time as more measurements are made, and interested persons are encouraged to make as many measurements as possible and submit them to the Commission. The Commission is satisfied that on the basis of the data presently available to it the data underlying the propagation charts are sufficient to afford an adequate statistical basis for describing field intensities under average conditions, but it is expected that there may be substantial variations in individual areas.

Long distance skywave interference. It is also realized that propagation to distances of the order of 500 to 1,500 miles via the sporadic E layer and to distances beyond via the F2 layer may occur in certain of the channels. However, since such interference may occur over extremely large distances, it is not possible to protect stations against such interference unless operation on such channels is limited to one or at the best a few stations. In order to provide stations for the various communities, the Commission has determined that the overall public interest is better served by not protecting television broadcast stations against this type of interference.

86. No objections were filed with respect to the proposal concerning long distance skywave interference. Accordingly, the decision of the Commission not to protect television broadcast stations against this type of interference is made final. In this connection it should be pointed out that in setting engineering standards, we have considered all known propagation effects. If in the future, any person is of the opinion that the Commission's rules do not properly reflect any given types of propagation effect, consideration will be given in an appropriate rule making proceeding only to amendment of the rules.

87. Several comments have been received which, in general, state that the propagation curves in Appendix B of the

Third Notice are not supported by the record when used for UHF propagation. These comments are especially directed to the use of these curves in rough terrain. Comments of this nature have been received from the Greylock Broadcasting Company, Pittsfield, Mass.; Fort Industry Company; Enterprise Publishing Company, Brockton, Mass.; WTAG, Inc., Worcester, Mass.; and James C. McNary.

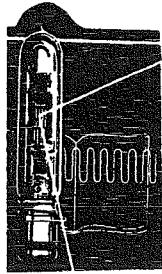
88. These comments must be viewed in light of the nature of the propagation curves used in the prediction of service areas and interference. The Ad Hoc Committee Report establishes that the received field intensities of television signals vary so greatly from location to location, and with time, that any prediction of service from these average curves for a specific station is expected to deviate appreciably from the actual service. In addition, it is clear that a very large number of measurements from both desired and interfering stations, many of which will not be in existence for several years, would be necessary to make an accurate prediction of service for any specific station. However, the Ad Hoc Report indicates that the over-all estimate of service for a large number of stations will be fairly good. In view of the foregoing, it is apparent that the Assignment Table must be made on a large area basis for which the over-all estimated service is reasonably accurate. The assignment rules and standards, however, cannot be construed as guarantees of service but rather as yardsticks based upon the best available data. As the quantity of available data increases, the assignment rules and standards may be revised at a later date in the light of the scientific findings.

89. The Commission, after review of the whole record and the comments filed in this proceeding, has decided that the 63 mc. F (50, 50) curves present a more accurate picture of expected service in the UHF than do the 195 mc. curves. The UHF data in the record indicates that for 50 percent of the locations the field strengths are approximately 4 db below the 195 mc. F (50, 50) curves for distances in the order of 10-20 miles for which data are available. The 63 mc. curves are approximately 4 db below the 195 mc. curves at distances of this order and appear to generally provide a reasonable match with the data for UHF within service distances (as contrasted with interfering distances). In addition the Commission has reconsidered the curves with respect to the prediction of interference in the UHF and based on T. R. R. Report No. 2.4.10 (Exhibit 565), in the record of this proceeding, a new family of curves for the prediction of interfering UHF signals has been prepared and has been substituted for the F (50, 10) curve for Channels 14-83 proposed in the Third Notice.

90. With these changes in mind the Commission is confident that the curves it is establishing are of sufficient accuracy to achieve the purposes of its assignment plan. The use of such curves is indispensable to the inauguration of a nationwide television service. If we were to await more extensive data before establishing the Assignment Table, it

**Kenneth D. Norberg & Thomas D. Clemens, *Current*
Developments in Communication: The First Year of Title VII,
*Audio Visual Commc'n Rev., Vol. 7, No. 4 (Fall, 1959)***

(Analysis of the National Defense Education Act and the Appropriation of Federal Funds for the Effective Utilization of Television, Radio and Other Media for Educational Purposes)



CURRENT DEVELOPMENTS IN COMMUNICATION

THE FIRST YEAR OF TITLE VII

• KENNETH D. NORBERG
• THOMAS D. CLEMENS

The National Defense Education Act has been characterized as a bold, many-faceted assault on the educational problems of America. In many ways, Title VII is unique in its approach to achieving the over-all purpose of the Act. Not only is Title VII focused exclusively on the problems of instructional media, but also it provides for the exercise of initiative by individuals, institutions, and agencies concerned with education in a manner which is markedly in keeping with the traditions of public education in the United States.

THE PROVISIONS OF TITLE VII

The primary purpose of Title VII is to encourage more effective utilization of television, radio, motion pictures, and related media for educational purposes. Each of the first two Parts of the Title provides for different types of activities intended to achieve this purpose:

Part A provides for the conduct and fostering of research and experimentation in the educational uses of the new media of communication which may prove of value to State or local educational agencies in the operation of their public elementary or secondary schools, and to institutions of higher learning. The Title indicates three broad types of research to be undertaken:

Kenneth D. Norberg is professor of education at Sacramento State College; Thomas D. Clemens is with the Audio-Visual Center at San Jose State College, California. At the time this article was written, both were on leave from these posts to the U. S. Office of Education.

1. The development of techniques for using or adapting the new media for educational purposes;
2. The training of teachers to use the new media; and
3. The presentation of academic subject matter through these media.

Grants may be made to public or private nonprofit agencies, institutions, or individuals, and contracts may be made with public or private agencies, organizations, institutions, or groups.

Part B, exclusively a contract program, is concerned with the dissemination of information concerning the new educational media. Types of activities which may be undertaken include: (1) studies and surveys; (2) publications; and (3) advice, counsel, and technical assistance to educational agencies and institutions.

Title VII also provides for the appointment of an Advisory Committee of New Educational Media, consisting of 14 members, which advises and makes recommendations to the Commissioner of Education, reviews all proposals, and certifies approval to the Commissioner of all proposals which it considers appropriate for funding by grants-in-aid or contracts. The composition of the Advisory Committee is:

1. The Commissioner of Education;
2. A representative of the National Science Foundation;
3. Three individuals identified with the sciences, liberal arts, or modern foreign languages in institutions of higher education;
4. Three individuals actually engaged in teaching or the supervision of teaching in elementary or secondary schools;
5. Three individuals with demonstrated ability in the use or adaptation of the new media for educational purposes; and
6. Three individuals representative of the lay public who have demonstrated an interest in the problems of the communication media.

HOW TITLE VII IS ADMINISTERED

In order to carry out the provisions of Title VII of the National Defense Education Act, the Educational Media Branch, with the Division of Statistics and Research Services, has been set

up in the Office of Education. In addition to its responsibilities in Title VII, the Branch also conducts all the activities formerly carried on by the Visual Education and the Radio-TV Sections of the Division of State and Local School Systems. The inclusion of all personnel concerned with the educational uses of the new media within the one Branch provides a continuity of experience and depth of interest in the media which would not otherwise be possible.

The Educational Media Branch is divided into two Sections: *The Research Section*, which is primarily concerned with the processing and appraisal of applications for research grants and contracts, the negotiation of conditions for grants, and the general supervision of research projects supported under the provisions of Title VII.

The Dissemination and Services Section, which is charged with the collection, annotation, and dissemination of information relating to the new media, both within and outside the provisions of Title VII. This charge is carried out through studies and surveys, through the publication of printed, visual, and auditory materials, and through consultation, technical services, and demonstrations.

During its first year of operation, the Educational Media Branch has established a number of policies and procedures which have been intended to facilitate the goals of Title VII. These are summarized below.

Part A—Research and Experimentation

1. Evaluation of research proposals

By law, only the Advisory Committee can approve a project for support under the provisions of Title VII. However, the evaluation process is so complex and difficult that the Advisory Committee has requested technical and objective assistance in gathering necessary information for making its decisions. These decisions are based upon:

A. Evaluative criteria

All research proposals are evaluated on the basis of:

- (a) The pertinence of the proposed research to the intent of Title VII;
- (b) The nationwide educational significance of the proposal;

- (c) The appropriateness of the experimental design and research techniques to achieve the purposes of the study;
- (d) The competence of the personnel and institutional facilities to carry the proposed research to completion; and
- (e) The economic efficiency of the proposal, as compared with other possible approaches to the problem.

B. *Rating of proposals*

Each proposal is read and rated on the basis of these criteria by five experts from outside the Office of Education, one member of the Branch staff, and one Office of Education specialist from outside the Branch. These ratings are considered by the Advisory Committee as it reads the proposal and makes its recommendations to the Commissioner of Education.

2. Maximum research productivity

It was apparent to the Advisory Committee that the success of the Title VII program would be dependent on rapid collection of significant and reliable research information within the first year of operation. It was essential, therefore, to use available funds to support the largest possible number of significant research projects. Policies established with the intent of assuring maximum productivity were:

A. *Grants vs. Contracts*

The problem of whether to support research by grant or contract is essentially a matter of whether initiative in defining research projects should be taken by those with professional responsibilities in the field, or by the Office of Education. In the opinion of the Advisory Committee, the best immediate results and the greatest long-term benefit would result from reference to the field, rather than from an immediate (and arbitrary) identification of research areas by the Office of Education staff. For this reason, only the grant portion of Part A has been activated during the first year of Title VII. The activation of the contract portion of Part A has been delayed until staff analysis and classification of existing research indicate areas which can be more

appropriately supported by contract research rather than by grants.

B. Programs of Research vs. Research Projects

In many instances, broad programs of research, conducted by a small number of eminent persons or institutions, can provide results which cannot be achieved by the support of a large number of specific research grants. Two factors militate against the support of such programs of research under Title VII at present: first, such support implies a type of general theoretical agreement which, in the opinion of the Advisory Committee, is not now present in the media field; and second, the support of programs of research would, of necessity, make for a much narrower base of participation in the Title VII program than would be possible through the support of specific projects. The Advisory Committee decided, therefore, that at the present time no support will be provided for general programs of research, but only for specific research projects.

C. Personnel vs. Capital Expenditures

Media research requires more physical facilities and equipment than many other types of educational research. Yet, the essential element in all research is the creative and professional thought of people, however important hardware may be. The Advisory Committee was confronted with the problem of providing adequate support for all essential expenditures related to approved research projects, and at the same time initiating as many worthwhile projects as possible. Two policy statements were made in order to solve this problem equitably:

- (a) Federal funds may not be used for the acquisition or permanent modification of buildings or other permanent installations, such as transmitters.
- (b) Federal funds may not be used for the outright purchase of equipment with an expected lifespan greater than that of the research project. Instead, an equipment allowance is made amounting to 20 percent per year of the undepreciated value of essential equipment.

Part B—Dissemination

Since Part B of Title VII is exclusively a contract program, policy to support and implement dissemination activities has necessarily been phrased as a series of general guidelines, rather than as rulings on specific issues. These guidelines are:

1. All dissemination activities should be limited to those new educational media activities which have national significance.
2. All dissemination activities must further the accomplishment of one or more of the following five aims:
 - A. To provide information about research completed, in process, or projected.
 - B. To provide more information about significant programs and teaching practices.
 - C. To increase the accessibility and availability of the new media by bibliographic or direct means.
 - D. To directly improve educational use and the training of teachers for educational use of the new media.
 - E. To develop national goals, standards, and guidelines for improved educational use of the new media.

**THE STATUS OF TITLE VII PROJECTS
AND ACTIVITIES TO DATE**

The National Defense Education Act authorized the expenditure of no more than \$3,000,000 for Title VII research and dissemination activities during Fiscal Year 1959. The initial appropriation by Congress was for \$500,000, with a supplemental appropriation of \$1,000,000 in May 1959. An additional \$100,000 was made available for New Educational Media research and dissemination activities from funds originally allocated to Title X of the National Defense Education Act.

In all, then, a total of \$1,600,000 was available for expenditure on Title VII activities by June 30, 1959. Of this amount, \$1,349,985 was obligated or expended for Part A projects, and \$249,981 for Part B projects, making a total expenditure of \$1,599,966. Congress has, at the time of writing, appropriated \$3,000,000 for expenditure on Title VII projects during the current fiscal year.

Part A—Research and Experimentation

At its meetings on March 5-6, and May 11-12, the Advisory Committee considered 353 separate proposals for research projects

from 40 different States, and the District of Columbia. Sixty-nine of these proposals, from 25 different States were approved for negotiation by the Advisory Committee. One of the approved projects was withdrawn by the institution who submitted it, and negotiation has not yet been completed on 8 projects. At the present time, 60 approved research projects have received Title VII grants, with an additional 8 to be funded when negotiation is completed. A list of the 60 projects which have received grant awards at the time of writing is appended.

An examination of the list of approved projects permits some interesting generalizations about the problems recognized by media researchers. Of the 60 research proposals approved by the Advisory Committee, 19 are concerned with the types of academic content suitable to presentation via the new media, 22 with methods of utilizing the media, 17 with the quality of education resulting from use of the media, and 9 with direct comparisons between the effectiveness of the new media and traditional methods of instruction. Types of media involved in the approved projects include motion pictures, slides, filmstrips, magnetic recordings, broadcast and closed-circuit television, kinescope and video tape recordings, large transparencies, and teaching machines.

The average approved research proposal will have a duration of more than two years, and would cost its supporting institution \$83,581, if Federal funds were not available. Federal funds required to carry all projects approved thus far to completion total in excess of \$5,590,000.

Part B—Dissemination

The Advisory Committee has thus far approved for support 16 dissemination activities. To date, one of these has been supported by requisition, and 12 have received contracts. The remaining projects are still in the process of negotiation, and will be funded subject to the completion of negotiation and the availability of funds. A list of approved dissemination activities funded thus far is appended.

CONCLUSION

The wide response among educators and media specialists to Title VII is in itself a confirmation of the need for such legislation as the National Defense Education Act. It is evidence of extraordinary interest in the problems of using communication media in education that over 400 different proposals for research and dis-

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semination activities should be forthcoming within a period of six months from the time of enactment of the enabling legislation. The status and quality of the profession is clearly attested by the fact that, within this same period of time, 85 of these projects should be deemed worthy of Federal support.

Undoubtedly, the evidence which will be collected and disseminated on the basis of current projects will generate more thought and study, which will lead to better instruction at all grade levels. Because of the professional level of communication specialists, Title VII has resulted in a year of solid progress. Congress may provide funds and enabling legislation, the Office of Education may provide coordination and administrative framework, but the success of Title VII in the future will rest upon those who were influential in bringing it into being, professional educators and communication specialists.

**SUMMARY OF RESEARCH GRANTS UNDER
TITLE VII, PUBLIC LAW 85-864**

State and Institution	Project Title	Principal Investigator
ARKANSAS		
Univ. of Arkansas	<i>A Study of Closed-Circuit TV as a Teaching Technique for Speech Improvement in the Public Schools</i>	Sara Ivey Norman DeMarco
CALIFORNIA		
John Tracy Clinic	<i>A Study of the Effectiveness of Using Selected Audio-Visual Techniques to Improve the Role of Parents in the Education of Deaf Children</i>	Edgar L. Lowell
Univ. of California Medical Center	<i>Experimentation and Development of New and More Effective Techniques and Methods for Training Teachers in, and Presenting Academic Subject-Matter Through, the Special Media of Television and Video Tapes in the Health Sciences</i>	Theodore S. Grant
San Jose State College	<i>Experimentation in the Utilization of Television for Classroom Observation of Practice Teachers</i>	William R. Rogers

FLORIDA

Univ. of Miami	<i>A Summertime Field Experiment in Bridging the Gap Between High School and College Through the Use of Television Instruction</i>	Sydney W. Head
Pinellas County Board of Public Instruction	<i>To Provide Pre-School Experiences, via Educational Television, for Orientation of Children Entering First Grade and to Facilitate Adjustment of Group Activities</i>	Walter N. Durost
Florida A & M Univ.	<i>An Exploratory Investigation of Perception Reactions of Southern Undergraduate Negroes to Visual Materials Depicting Various Groupings of Ethnic Subjects</i>	Theodore B. Cooper

GEORGIA

Univ. of Georgia	<i>A Study of Pre-Service Teacher Education in the Use of Media of Mass Communication for Classroom Instruction</i>	Garland E. Oliver
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ILLINOIS

Univ. of Illinois	<i>Illinois Studies in Inquiry Training</i>	J. Richard Suchman
National Association of Educational Broadcasters	<i>An Investigation of the Educational Characteristics of the New Media of Communication</i>	Herbert M. McLuhan
Univ. of Illinois	<i>Development of Methods and Materials to Facilitate Foreign Language Instruction in Elementary Schools</i>	Charles E. Johnson

INDIANA

Indiana Univ.	<i>Improving the Quality of Teacher Performance by the Use of the Video Tape Recorder</i>	Henry A. Bern
Indiana Univ.	<i>Studies of Patterns of Influence in the School Situation as They Affect the Use of Audio-Visual Materials</i>	James Q. Knowlton
Purdue Univ.	<i>Preparation and Evaluation of Use of a Series of Brief Films of Selected Demonstrations from the Introductory College Physics Course</i>	D. J. Tendam

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Earlham College *New Instructional Media: Self-Instruction, Guided Instruction, and the Role of the Teacher* John A. Barlow

KANSAS

Kansas State Teachers College at Pittsburg *A Study of the Effectiveness of Filmed Science Courses in Public Secondary Schools* William A. Black

LOUISIANA

Grambling College *A Comparative Study of the Effectiveness of Three Techniques of Film Utilization in Teaching a Selected Group of Educable Mentally Retarded Children Enrolled in Louisiana Public Schools* Lamore J. Carter Roy B. Moss Mamie L. T. Wilson

MAINE

Maine State Dept. of Education *To Identify and Evaluate an Economical and Practical Method of Televised Instruction to Stimulate Gifted Pupils in Small Secondary Schools* Joseph J. Devitt

MASSACHUSETTS

Boston Univ. *Integration of Science Teaching by Television into the Elementary School Program* Ralph Garry

Massachusetts Institute of Technology and WGBH-TV *The Out-of-Classroom Audience of WGBH-TV: A Study of the Relationship of Motivations in Viewing and Amount of Learning* Ithiel de Sola Pool

Harvard Univ. *An Analysis of Behavioral Processes Involved in Self-Instruction with "Teaching Machines"* B. F. Skinner

Massachusetts Council for the Public Schools *Massachusetts Council for the Public Schools—FLES TV and Film Project—Teacher Training Division* Gordon R. Silber

MICHIGAN

Michigan State Univ. *An Analysis of the Ways in Which the Application of New Communications Media May Improve Teacher Preparation, Especially in Such Fields as Languages, Science, and Mathematics* James B. Tintera

Wayne State Univ. *The Modern Language Audio-Visual Project: An Experiment* George Borglum

Wayne State Univ.	<i>tal Development of Materials and Techniques for the Improvement of Language Learning for Beginners</i>	George Borglum
National Educational Television and Radio Center	<i>A Study of the Relative Effectiveness of Using Filmed Demonstrations for Teacher Education, in a New High School Mathematics Curriculum</i>	Max Beberman
Wayne State Univ.	<i>Improvement of College Instruction in Biology, Through the Use of Recorded Lectures Designed to Increase Student-Instructor Contact</i>	John R. Jackson
Michigan State Univ.	<i>Development of Problem-Solving Ability, and Learning of Relevant-Irrelevant Information Through Film and TV Versions of a Strength of Materials Testing Laboratory</i>	Charles O. Harris
MINNESOTA		
Univ. of Minnesota	<i>To Develop and Evaluate Sound Filmstrips for Use in Improving Teacher-Pupil Contacts in the Classroom</i>	Ned A. Flanders
Univ. of Minnesota	<i>To Study the Effectiveness of Closed-Circuit Television in a Program of Teacher Education</i>	Robert J. Keller
Twin Cities Area ETV Corporation	<i>To Investigate the Relationship Between Specific Television Production Techniques and Content Organization and Maximum Learning Experiences</i>	John Schwarzwalder
MISSOURI		
Stephens College	<i>An Experiment to Determine the Values of Using Amplified Telephone Interviews with Significant People, to Enrich Certain Collegiate Courses</i>	James Burkhart
NEW MEXICO		
New Mexico Highlands	<i>Improving Language Arts of Bilinguals Through Audio-Visual Means</i>	Marion Cline, Jr.
NEW YORK		
Hunter College	<i>To Determine Methods for Improving Teacher Education and Measures of Student-Teaching Performance Through the Uses of Television</i>	Herbert Schueler

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Syracuse Univ. *An Experimental Study of the Influence of the Superior Teacher Using Television as a Transmission Facility* Lawrence Myers, Jr.

Rensselaer Poly-technic Institute *The Development of Animated Films to Facilitate Creative Space Perception* Harold B. Howe

New York State Education Department *New Media for the Improvement of Mathematics and Science Instruction* Loran C. Twyford, Jr.

NORTH CAROLINA

Univ. of North Carolina *A Study to Determine Specific Sources of Resistance to Use of Audio-Visual Materials, by College and University Teachers, and the Development of Procedures for Overcoming the Barriers to Optimum Use* K. M. McIntyre

OHIO

Univ. of Akron *Production and Use of Classroom on Film Versus Traditional Observations in Teacher Education* William I. Painter

Ohio State Univ. *Experimental Development of a Mobile Laboratory of New Media of Instruction for Use in the In-Service Education of Teachers of Mathematics and Science* John Richardson

Ohio State Univ. *Testing the Effectiveness of Two-Purpose Television Programs to Both Teacher and Pupil Learning in Elementary Science* Alexander Frazier

OKLAHOMA

Univ. of Oklahoma *An Experiment in Basic Teacher Training Courses in Which Selected Audio-Visual Media Are Substituted for Actual Classroom Observation* W. R. Fulton
Omer J. Rupiper

Univ. of Oklahoma *A Study of the Relative Effectiveness of Selected Approaches to the In-Service Education of Teachers in the Utilization of In-School Radio and Television Broadcasts* Jesse Burkett

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AUDIO-VISUAL COMMUNICATION REVIEW

OREGON

Oregon State System of Higher Education *An Experiment in the Use of Educational Broadcasting to Meet Growing Needs of the Junior College Program for the Youth of Oregon* James M. Morris

Oregon College of Education *A Study of the Effectiveness of Audio-Visual Teaching Materials When Prepared According to the Principles of Motivational Research* Walter E. Snyder

Univ. of Oregon *A Study of the Resistance to Television for Educational Purposes: Its Nature, Purpose, and Control* Lionel Wishneff

PENNSYLVANIA

Pennsylvania State Univ. *A Study of Patterns for Improving Teacher Education in the Uses of Audio-Visual Materials, and Effects Upon Pupil Learning of Optimal Teacher Use* G. M. Torkelson

Pennsylvania State Univ. *Measuring the Effectiveness of Documentary Sound-Film as a Supplement to Teaching Methods to College Students Preparing to Teach in Secondary Schools* Robert B. Patrick

Pennsylvania State Univ. *An Investigation of the Improvement of Informational Motion Pictures and Derivation of Principles Relating to the Effectiveness of These Media* A. W. VanderMeer

Pennsylvania State Univ. *An Investigation of the Improvement of Informational Filmstrips and the Derivation of Principles Relating to the Effectiveness of These Media* A. W. VanderMeer

Pennsylvania State Univ. *An Experimental Project for Appraising the Effectiveness of Televised Series on Reading Instruction Developed Through the Involvement of Teachers and Parents* Lyman C. Hunt, Jr.

Drexel Institute of Technology *Magnetic Recording and Visual Displays as Aids in Teaching Introductory Psychology to College Students* Roland E. Johnston, Jr.

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Metropolitan Pittsburgh Edu- cational Tele- vision Stations	<i>Stimulating Pupil Participation Arthur Lumsdaine in the Learning Process by Techniques of Suspense, An- ticipation, and Competition in Television Instruction</i>	
American Institute for Research	<i>Increased Learning from TV Arthur Lumsdaine Courses by Use of Integrated Self-Scoring Instructional Quiz Materials and "Practice Ma- chines"</i>	
TEXAS		
Univ. of Houston	<i>An Experiment with the Use of Richard I. Evans a Video Tape Recorder in a Program Designed to Improve College Level Teaching Tech- niques</i>	
Baylor Medical College	<i>Teaching Human Physiology via William Spencer a Data Broadcast System</i>	
Univ. of Texas	<i>Experimentation in the Adapta- Clayton W. Chance tion of the Vu-Graph Overhead Projector, Utilizing 200 Trans- parencies and 800 Overlays in Teaching Engineering and De- scriptive Geometry Curricula</i>	
Univ. of Houston	<i>The Effectiveness of Teaching Lester Richardson High School Physics by Tele- vision, as Determined by Cer- tain Varying Conditions</i>	
UTAH		
Univ. of Utah and Salt Lake City Public Schools	<i>Challenging Superior Elemen- Keith M. Engar tary Grade Students Through a Study of Russian via Television</i>	
WASHINGTON		
Univ. of Washington	<i>A Comparative Evaluation of Victor E. Hanzeli the Use of Two Modern Methods —Audio-Visual and Dialogue— for Teaching a Spoken Lan- guage</i>	
WISCONSIN		
Univ. of Wisconsin	<i>An Investigation and Evalua- Walter A. Wittich tion of More Efficient Ways of Appraising Teachers in Train- ing and in Service of Ways of Improving Their Day-to-Day Classroom Learning Activities and Procedures, Through the Uses of Audio-Visual Media</i>	

SUMMARY OF DISSEMINATION ACTIVITIES BEING SUPPORTED
UNDER TITLE VII, PUBLIC LAW 85-864

State and Institution	Project Title	Principal Investigator
CALIFORNIA		
Institute for Communication Research, Stanford Univ.	<i>Education and the New Media (A Series of "Growing Edge" Conferences and a Summary Study)</i>	Wilbur Schramm
DISTRICT OF COLUMBIA		
Association for Supervision and Curriculum Development	<i>A Theoretical Framework for the Development and Utilization of Instructional Materials</i>	Rodney Tillman
National Academy of Sciences	<i>Fundamental Process in Educa- tion (A Summer Study)</i>	R. M. Whaley
National Education Association (DAVI)	<i>A Pilot Project Involving a Re- gional Conference and Work- shop Demonstrations of Educa- tional Use of the New Media</i>	Anna Hyer Rodney Tillman
Visual Aids Branch, Div. of General Services, Dept. of HEW	<i>A Four-Part Program of New Educational Media Exhibits</i>	Douglass Hayes
ILLINOIS		
National Association of Educational Broadcasters	<i>The Feasibility and Role of State and Regional Activities in Educational Broadcasting</i>	Harry Skornia
INDIANA		
Indiana Univ.	<i>A Study of Public School Audio- Visual Budgets</i>	K. C. Rugg
Indiana Univ.	<i>A Study to Determine a Feasi- ble Method of Establishing Bib- liographic Control of Educa- tional Audio-Visual Materials for the Purpose of Informing Teachers Concerning Available Materials and Their Educa- tional Utility</i>	Margaret Rufsvold Carolyn Guss
MARYLAND		
Board of Education of Washington County	<i>A Survey of Television Equip- ment and Facilities Used for Purposes of Instruction by Pub- lic Schools, Colleges, and Uni- versities</i>	John Brugger

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MICHIGAN

National Educational Television and Radio Center *A Proposal for the Planning and Production of Filmed Reports of Teaching Practices in the Use of New Media for Instructional Purposes in the Fields of Modern Foreign Languages, Mathematics, and General Science* Robert B. Hudson

NEBRASKA

North Central Association of Colleges and Secondary Schools *A Seminar for the Identification and Dissemination of Effective Principles and Practices in the Use of Television for Educational Purposes* Donald G. Emery

NEW YORK

Columbia Univ. *A Feasibility Study Regarding the Establishment of a New Educational Media Research Information Center* Maurice F. Tauber Oliver L. Lilley

Modern Language Association *Language Materials List for Use in Improved Foreign Language Teaching in Public Elementary and Secondary Schools* George W. Stone, Jr.